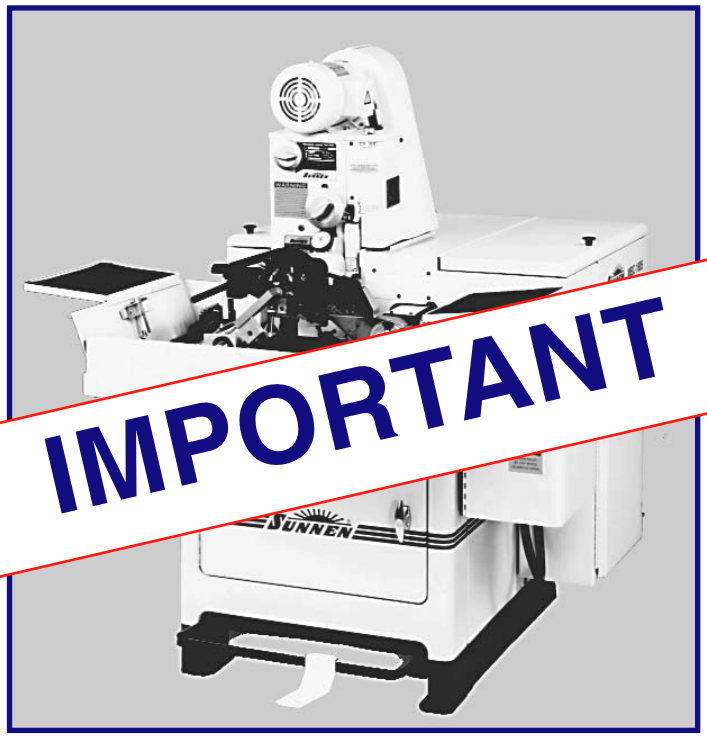
# New Machine Inspection and Installation

# PROCEDURE




for

## SUNNEN® PRECISION HONING MACHINE

CE

**Model: MBC-1805**

READ THE FOLLOWING INSTRUCTIONS THOROUGHLY AND CAREFULLY BEFORE UNPACKING, INSPECTING, OR INSTALLING THE SUNNEN® PRECISION HONING MACHINE.

"SUNNEN AND THE SUNNEN LOGO ARE REGISTERED TRADEMARKS OF SUNNEN PRODUCTS COMPANY."

SUNNEN® PRODUCTS COMPANY • 7910 MANCHESTER ROAD • ST. LOUIS, MO 63143, U.S.A. • PHONE: 314-781-2100

## GENERAL INFORMATION

The Sunnen® equipment has been designed and engineered for a wide variety of parts within the capacity and limitation of the equipment. With proper care and maintenance this equipment will give years of service.

READ THE FOLLOWING INSTRUCTIONS CAREFULLY AND THOROUGHLY BEFORE UNPACKING, INSPECTING, OR INSTALLING THIS EQUIPMENT.

IMPORTANT: Read any supplemental instructions BEFORE installing this equipment. These supplemental instructions give you important information to assist you with the planning and installation of your Sunnen equipment.

Sunnen Technical Service Department is available to provide telephone assistance for installation, programming, & troubleshooting of your Sunnen equipment. All support is available during normal business hours, 8:00 AM to 4:30 PM Central Time.

Review all literature provided with your Sunnen equipment. This literature provides valuable information for proper installation, operation, and maintenance of your equipment. Troubleshooting information can also be found within the Instructions. If you cannot find what you need, call for technical support.

Where applicable, programming information for your Sunnen equipment is also included. Most answers can be found in the literature packaged with your equipment.

**Help us help you. When ordering parts, requesting information, or technical assistance about your equipment, please have the following information available:**

- Have ALL MANUALS on hand. The Customer Services Representative or Technician will refer to it.
- Have Model Number and Serial Number printed on your equipment Specification Nameplate.
- Where Applicable: Have Drive model and all nameplate data. Motor type, brand, and all nameplate data.

**For Troubleshooting, additional information may be required:**

- Power distribution information (type - delta, wye, power factor correction; other major switching devices used, voltage fluctuations)
- Installation Wiring (separation of power & control wire; wire type/class used, distance between drive and motor, grounding).
- Use of any optional devices/equipment between the Drive & motor (output chokes, etc.).

**For fast service on your orders call:**

Sunnen Automotive Customer Service toll free at: 1-800-772-2878
Sunnen Industrial Customer Service toll free at: 1-800-325-3670
Customers outside the USA, contact your local authorized Sunnen Distributor.
Additional information available at: http://www.sunnen.com or e-mail: sunnen@sunnen.com

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## ESD PREVENTION REVIEW

Let's review the basics of a sound static control system and its effective implementation. First, in the three step plan:

1. Always ground yourself when handling sensitive components or assemblies.
2. Always use a conductive or shielded container during storage or transportation. These materials create a Faraday cage which will isolate the contents from static charges.
3. Open ESD safe containers only at a static safe work station.

At the static safe work station, follow these procedures before beginning any work:

A. Put on your wrist strap or foot grounding devices.

B. Check all grounding cords to make sure they are properly connected to ground, ensuring the effective dissipation of static charges.

C. Make sure that your work surface is clean and clear of unnecessary materials, particularly common plastics.

D. Anti-static bubble wrap has been included for use at the machine when an ESD safe workstation is not available.

You are now properly grounded and ready to begin work. Following these few simple rules and using a little common sense will go a long way toward helping you and your company in the battle against the hazards of static electricity. When you are working with ESD sensitive devices, make sure you:

**GROUND**

**ISOLATE**

**NEUTRALIZE**

# SUNNEN® LIMITED PRODUCT WARRANTY

Sunnen® Products Company and its subsidiaries (SPC) warrant that all new SPC honing machines, gaging equipment, tooling, and related equipment will be free of defects in material and/or workmanship for a period of one year from the date of original shipment from SPC.

Upon prompt notification of a defect during the one-year period, SPC will repair, replace, or refund the purchase price, with respect to parts that prove to be defective (as defined above). Any equipment or tooling which is found to be defective from improper use will be returned at the customer's cost or repaired (if possible) at customer's request. Customer shall be charged current rates for all such repair.

Prior to returning any SPC product, an authorization (RMA#) and shipping instructions must be obtained from the Customer Service Department or items sent to SPC will be returned to the customer.

**Warranty Limitations and Exclusions** This Warranty does not apply to the following:

- Normal maintenance items subject to wear and tear: (belts, fuses, filters, etc).
- Damages resulting from but not limited to:
  - › Shipment to the customer (for items delivered to customer or customer's agent F.O.B., Shipping Point)
  - › Incorrect installation including improper lifting, dropping and/or placement
  - › Incorrect electric power (beyond +/- 10% of rated voltage) including intermittent or random voltage spikes or drops
  - › Incorrect air supply volume and/or pressure and/or contaminated air supply
  - › Electromagnetic or radio frequency interference from surrounding equipment (EMI, RFI)
  - › Storm, lightning, flood or fire damage
  - › Failure to perform regular maintenance as outlined in SPC manuals
  - › Improper machine setup or operation causing a crash to occur
  - › Misapplication of the equipment
  - › Use of non-SPC machines, tooling, abrasive, fixturing, coolant, repair parts, or filtration
  - › Incorrect software installation and/or misuse
  - › Non-authorized customer installed electronics and/or software
  - › Customer modifications to SPC software

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## Shipping Damages

Except in the case of F.O.B., Buyer's destination shipments, SPC will not be liable for any settlement claims for obvious and/or concealed shipping damages. The customer bears the responsibility to unpack all shipments immediately and inspect for damage. When obvious and/or concealed damage is found, the customer must immediately notify the carrier's agent to make an inspection and file a claim. The customer should retain the shipping container and packing material.

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Any alteration or reverse engineering of the software is expressly forbidden and is in violation of this agreement.

SPC reserves the right to update the software covered by this agreement at any time without prior notice and any such updates are covered by this agreement.

# SAFETY INSTRUCTIONS

## READ FIRST

This machine, like any equipment, may be dangerous if used improperly. Please read all warnings and instructions before attempting to use this machine.

Always disconnect power at main enclosure before servicing machine.[1]

Always wear eye protection when operating this machine.

WARNING: Do not wear cotton or heavy gloves while operating this equipment! If gloves must be worn, wear only the tear-away type.

NEVER open or remove any machine cover or protective guard with power "ON." Always disconnect power at main enclosure before servicing this equipment.[1]

DO NOT attempt any repair or maintenance procedure beyond those described in this book. Contact your Sunnen® Field Service Engineer or Technical Services Representative for repairs not covered in these instructions.

Due to the wide variety of machine configurations, all possibilities cannot be described in these instructions. Instructions for safe use and maintenance of optional equipment ordered through Sunnen, will be provided through separate documentation and/or training provided by your Sunnen Field Service Engineer or Technical Services Representative.

DO NOT attempt to defeat any safety device on this machine or on any of the optional equipment.

If specially built automation components are added to this system, be sure that safety is not compromised. If necessary, obtain special enlarged work area safety system from Sunnen Products Co.

CE Indicates CE version ONLY.

[1] DO NOT touch electrical components until main input power has been turned off and *CHARGE* lamps are extinguished. WARNING: The capacitors are still charged and can be quite dangerous.

**Important information to assist you with the unpacking and installation of your Sunnen Vertical Honing System.**

# NEW MACHINE
# INSPECTION & INSTALLATION PROCEDURE
### FOR SUNNEN® PRECISION HONING MACHINE

## PURPOSE
Consult this section when unpacking, inspecting, and installing Sunnen® MBC-1805 Precision Honing Machine. Hereafter, referred to as the Machine (see Figure 1).

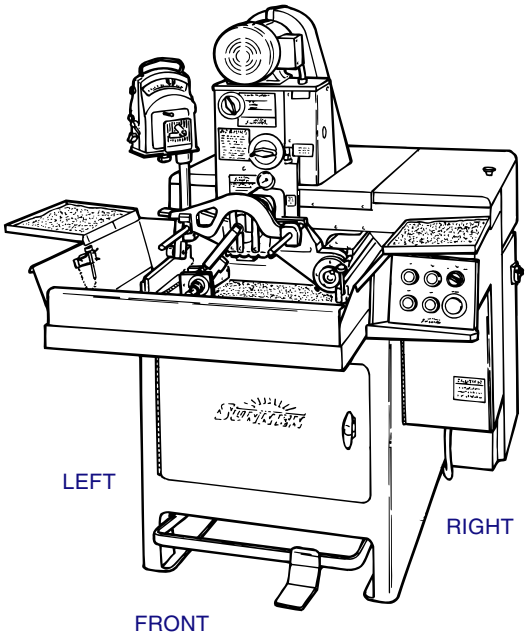


**FIGURE 1, Precision Honing Machine**

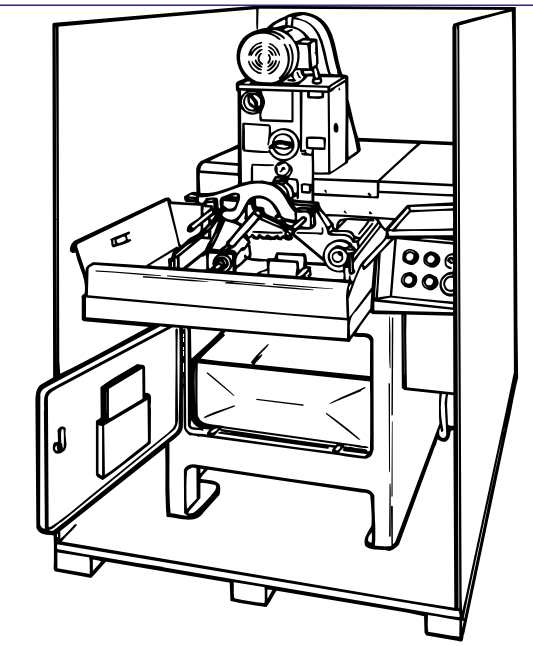

**FIGURE 2, Unpacking**

## TOOLS & MATERIALS
The following tools and materials are required for unpacking and installing the machine:
Knife Hammer
Crow Bar Tin Snips
Hex Wrench Wire Cutters/Strippers
Screwdriver (Std. Nose) Slip-Joint Pliers
Open End Wrenches Cleaning Solvent

## INSTALLATION
Read the following instructions carefully and thoroughly before unpacking, inspecting and installing your Machine. All references to right and left in these instructions are, unless otherwise noted, as seen by the operator as one looks at the front of the Machine or assembly being described (refer to Figure 1).

1. Remove top and front of shipping carton by cutting along edges.
2. Remove items shipped inside carton.
3. Remove machine from carton and inspect Machine and Components for dents, scratches, or damage resulting from improper handling, by carrier (see Figure 2). If damage is evident, immediately file a claim with carrier.
4. Move Machine to desired location.
5. Level Machine in both left to right and front to back directions (see Figure 3).

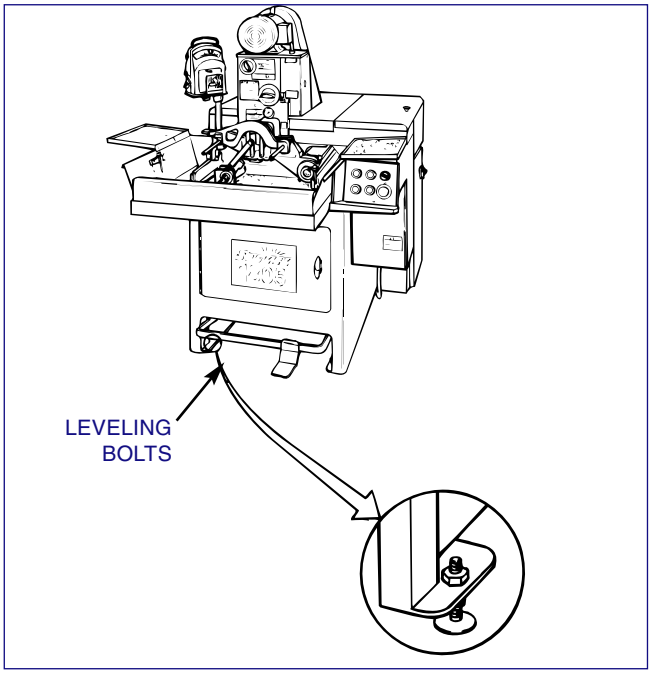


**FIGURE 3, Leveling Machine**

NOTE: For permanent installation, secure Machine's Support Feet to floor with four (4) Fasteners.

6. Open access Door on front of the Machine.

7. Remove Reservoir Retainers, by removing two (2) Screws (see Figure 1-4).

8. Remove and discard cardboard packing.

9. Open left Belt Guard

10. Open access Door to Filter Canister.

11. Loosen Screws in Mounting Bracket and raise Filter Canister Assembly 115 mm (4.5 in.) so hoses will clear Coolant Reservoir and allow Coolant Reservoir to be pulled out (see Figure 1-5).

12. Tighten Screws in Mounting Bracket.

13. Push Drain Pipe to the left and up.

14. Pull Reservoir out far enough to remove all packing paper and tape from the reservoir.

15. Remove packing material and tape from the Settlement Tray, and install tray in Coolant Reservoir.

16. Push the Reservoir all the way in and reinstall Reservoir Retainers, using two (2) Screws removed in step 7.

17. Pull Drain Pipe down and to the right.

18. Loosen Screws in Mounting Bracket and lower Filter Canister Assembly back into operating position. Tighten Screws.

19. Close access Door to Filter.

20. Close Belt Cover Guard.

21. Open access Door to Power Stroke Unit, remove strapping from Power Stroke Motor; then close Door.

22. WORK TRAY. Install Work Tray on left side of machine as follows (see Figure 1-6):

Remove Nuts on left side of machine.

Install Work Tray using Nuts just removed.

Install Tray Pad in Work Tray.

23. DRIP TRAY. Install Drip Tray on right side of machine as follows (see Figure 1-7):

Remove Nuts on bottom of Operator Control Station.

Install Drip Tray using Nuts just removed.

Install Tray Pad in Drip Tray.

Slide Retaining Bushing over end of Drain Tube and insert tube into hole in Machine Tray. Allow 13 mm (.500 in.) of Drain Tube to project through side of Machine Tray. Secure Drain Tube by inserting Retaining Bushing into hole

Attach other end of Drain Tube to Drip Tray.

24. Raise the work area cover.

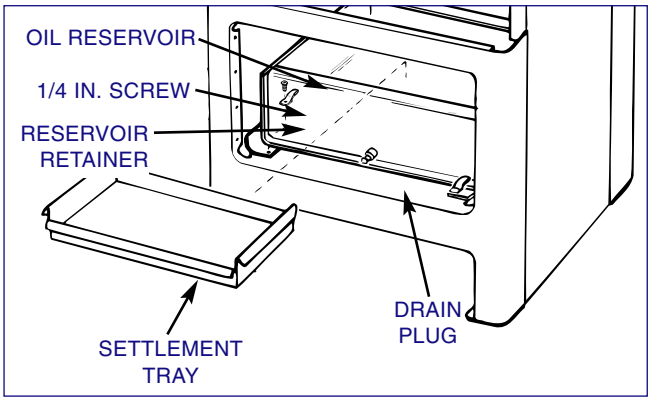


**FIGURE 1-4, Coolant Reservoir**

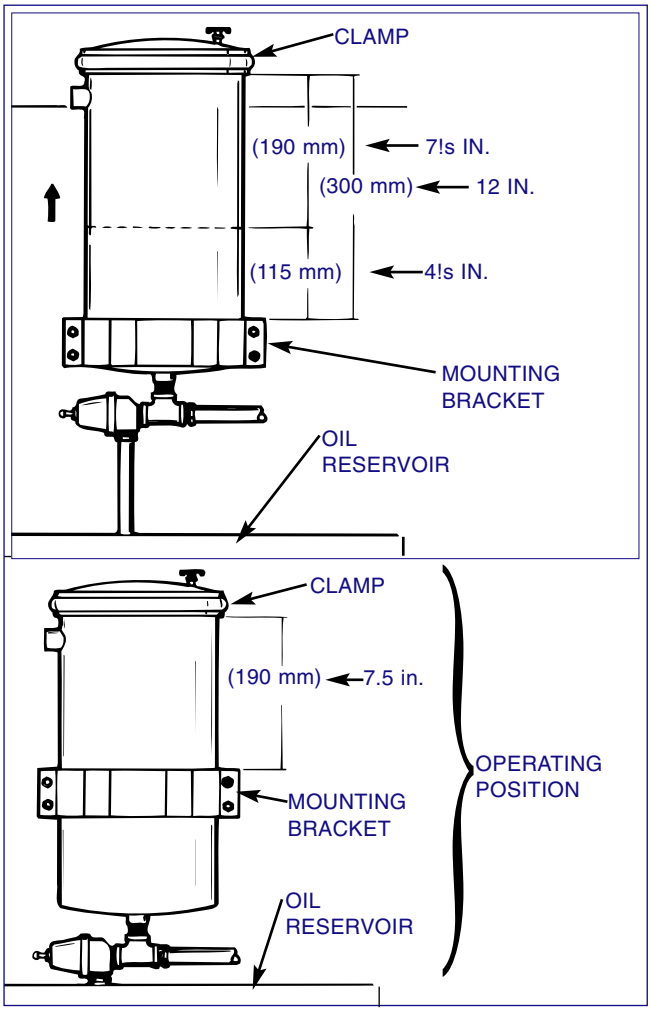


**FIGURE 1-5, Filter Canister**

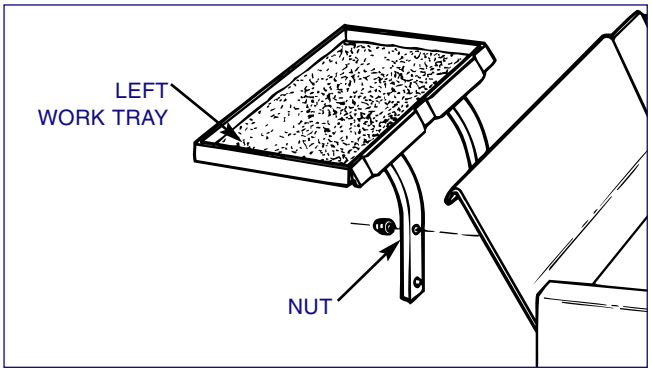


**FIGURE 1-6, Left Work Tray**

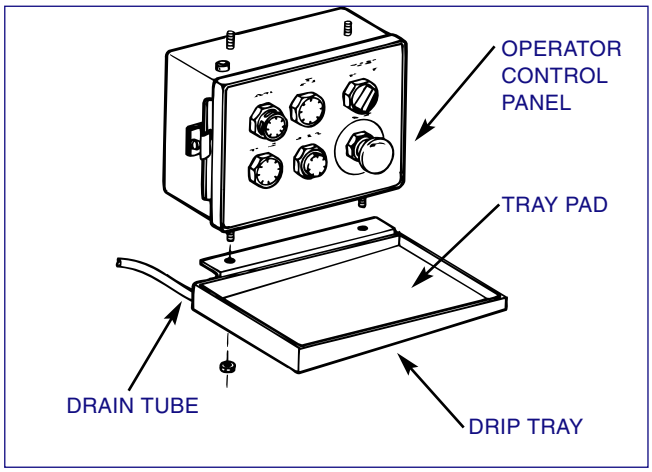


**FIGURE 1-7, Right Drip Tray**

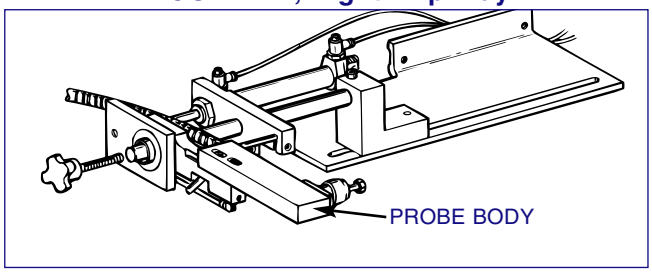


**FIGURE 1-8, Automatic Size Control Unit**

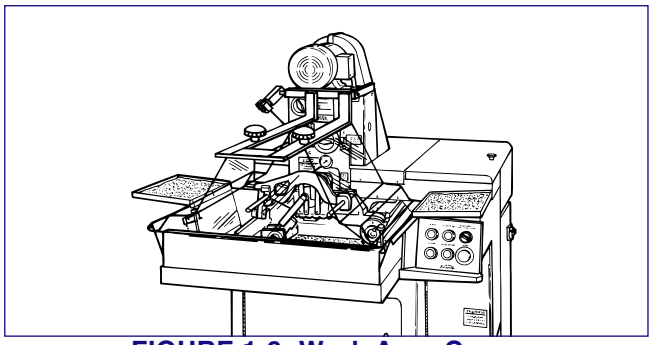

**FIGURE 1-9, Work Area Cover**

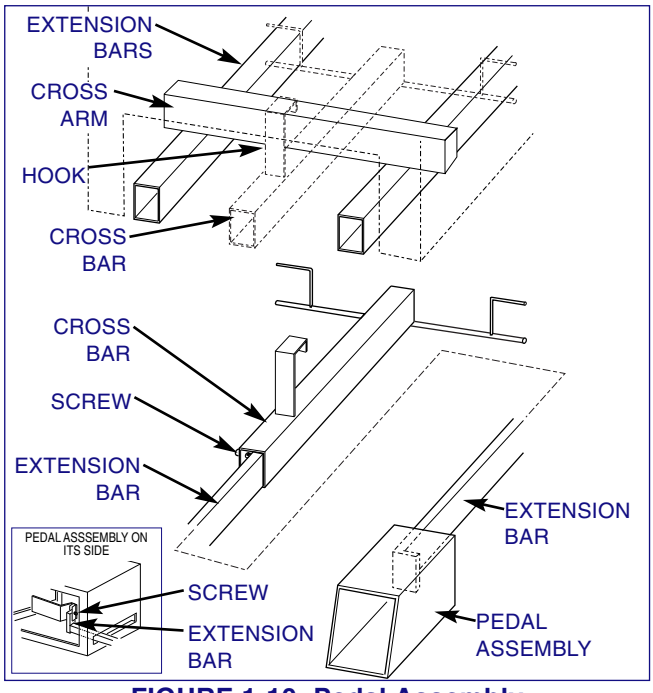


**FIGURE 1-10, Pedal Assembly**

25. MOVEABLE TRAY. Adjust Moveable Tray as follows: Lift and pull out the Moveable Tray to a position that will be comfortable for the job to be honed.

26. AUTOMATIC SIZE CONTROL UNIT. Remove packing material and tape from the Automatic Size Control (ASC) Unit (see Figure 1-8), and attach unit to bracket in Movable Tray.

27. CE Close work area cover.

28. CE WORK AREA COVER. Loosen the two Knobs on the top of the cover and move the cover out until the Target Piece on the cover is over the Magnetic Switch on the Front Splash Gate (see Figure 1-9). Tighten the knobs.

Adjust the Pressure Regulator on the Cover Counterbalance Cylinder so that the Cover will remain in any position in which it is placed.

29. CE FOOT PEDAL. To install Foot Pedal Assembly, proceed as follows (see Figure 1-10).

NOTE: DO NOT attempt to fork machine with the Pedal Tube Assembly and Pedal Assembly installed.

- Loosen Socket Head Screw (1/4 in. Hex Wrench) securing Extension Bar to Cross Bar, and slide Extension Bar out of Cross Bar.
- Slide Cross Bar under machine so U-Shade Hook on end of Bar engages Machine's Foot Pedal Extension Bars. Slide Bar in at an angle; engage one side, then straighten out Bar to engage other side.
- Slide Cross Bar back and hook over Machine's Cross Arm.
- Remove Foot Pedal from Accesory Pack.
- Lay Foot Pedal Assembly (Extension Bar) on its side.
- Slide Foot Pedal over Cross Arm on Extension Bar and tighten Socket Head Screw (1/4 in. Hex Wrench).
- Slide Extension Bar into Cross Bar and tighten Socket Head Screw (1/4 in. Hex Wrench).

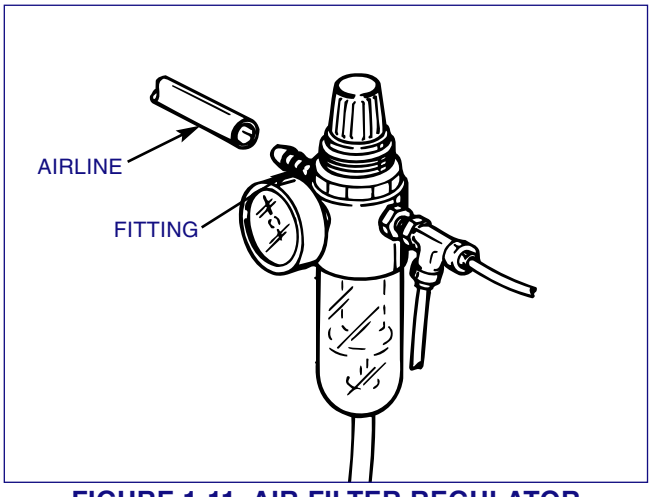


**FIGURE 1-11, AIR FILTER REGULATOR**

30. Open access Door on top right of the machine.

NOTE: CE machines require no tools to open doors.

31. Route a 6,350mm (1/4") air supply line (Parker Push Lok-801-4 Air Line or its equivalent is recommended) under back panel of machine and up to Barb Fitting on Inlet Side of Air Filter/Regulator (see Figure 1-11).

NOTE: An air supply of at least 5.5 Bar (80 psi) must be connected to machine for Automatic Cycle Start to operate properly.

32. Route Drain Hose to Coolant Reservoir.

33 Close access Door.

## ELECTRICAL CONNECTION

The 230 V Machine requires a 5,3mm$^2$ (#10/4, Type SO, 600 Volts) electrical supply cord. (The Machine requires 230 V, 3 Phase, 50 or 60 Cycle Power. Maximum current load is 35 amps.)

The 460 V Machine requires a 3,3mm$^2$ (#12/4, Type SO, 600 Volts) electrical supply cord. (The Machine requires 460 V, 3 Phase, 50 or 60 Cycle Power. Maximum current load is 35 amps.)

1. Loosen Safety Latches on Electrical Control, and remove padlock if installed.

2. Turn OFF Main Power Disconnect and open door to enclosure.

3. Punch a 22mm (.875") Diameter Hole through the bottom of Enclosure (see Figure 1-12).

4. Insert Electrical Supply Cord through Entrance Hole, using a Cord Connector (not supplied) to provide an oil tight fitting. Allow for approximately 610mm (24") of cable from where it enters enclosure and cut off excess.

5. Strip 250mm (10 in.) of outer jacket from cable.

6. Strip 10mm (.375 in.) of insulation from each wire.

7. Connect green wire (electrical supply cord) to Terminal E or PE (Earth Ground).

8. Connect other three wires (electrical supply cord) to top of Electrical Disconnect Block as noted on block.

9. Replace plastic cover on Electrical Disconnect Block. 10. Close and lock door to Electrical Control Enclosure.

11. Connect Electrical Supply Cord to power source.

12. Turn ON power at Main Power Disconnect and check spindle shaft rotation.

NOTE: Rotation of Spindle Shaft should be counterclockwise, as viewed from output end of Spindle Drive Motor. If rotation is incorrect reverse any two wires, connected in step 8.

13. Turn OFF power.

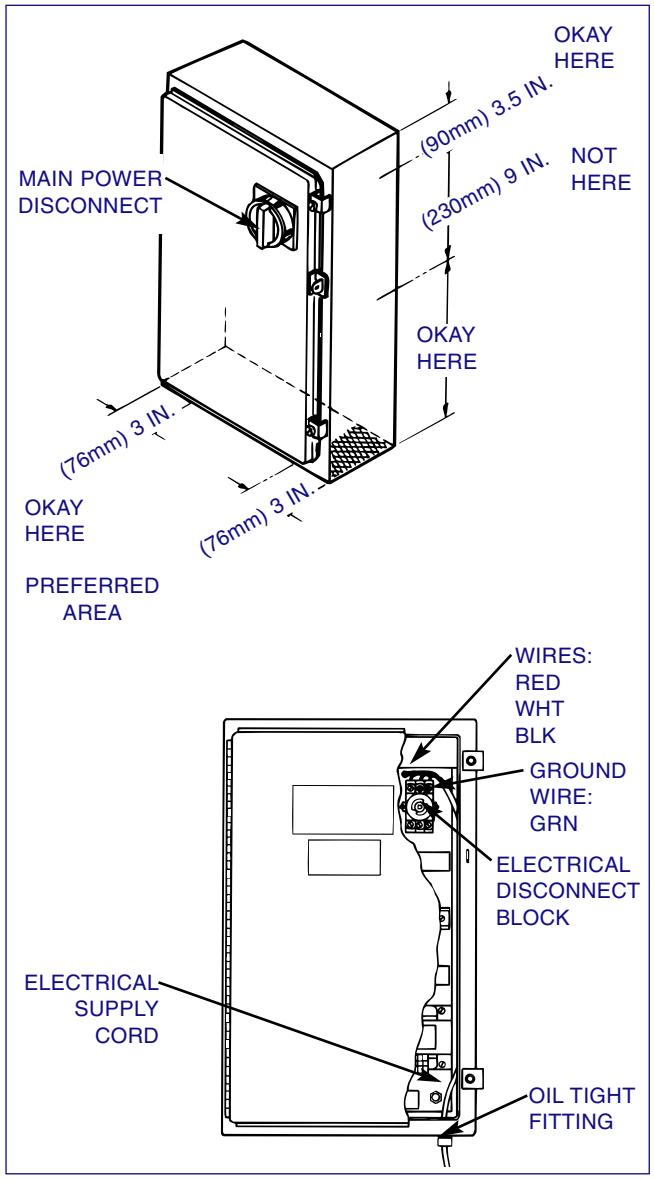


**FIGURE 1-12 Electrical Control Enclosure**

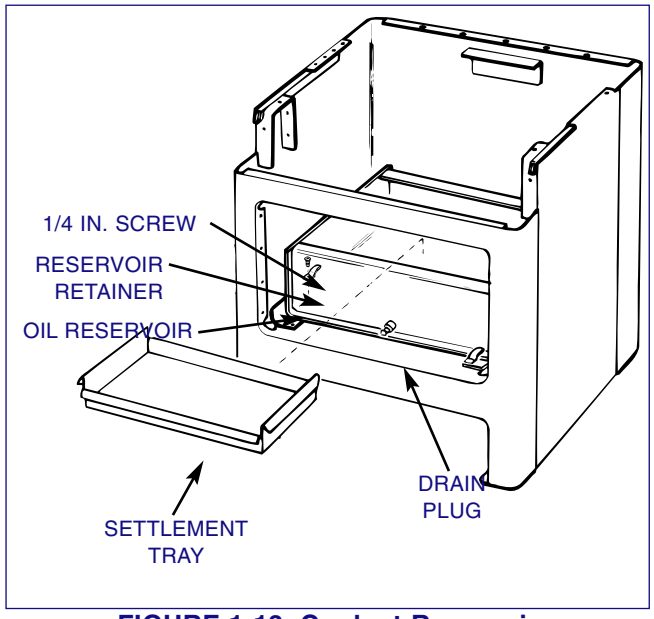


**FIGURE 1-13, Coolant Reservoir**

## FILLING FLUIDS

Fill Coolant Reservoir with Sunnen Industrial Honing Oil or Sunnen Water-Based Coolant as follows (see Figure 1-13):

NOTE: Maximum capacity of the Coolant Reservoir is 106 liters (28 gallons). A minimum capacity of 38 liters (10 gallons) is needed for proper pump operation.

1. Open Door on front of Machine.
2. Remove Settlement Tray from Coolant Reservoir.
3. Pour approximately 90 liters (23 gallons) of coolant into the machine Work Tray or pump coolant directly into Reservoir.
4. Replace Tray and close door.

## OPERATIONAL CHECK

Read Sections 2 and 3 thoroughly and carefully before performing the Operational Check.

1. Power up the Machine and check that motors and spindle are operating properly.
2. Bleed Coolant System:

Direct Coolant Nozzles downward and open Knobs on Flow Control Manifold.

Turn ON power and let pump run until all coolant nozzles are delivering a steady stream of coolant.

Pour an additional 19 liters (5 gallons) of approved coolant into the Machine Work Tray, to top off the system as the Filter Canister fills. The Coolant System holds a total of 106 liters (28 gallons) of coolant.

Push POWER OFF Button.

3. After unpacking and installing the Machine, clean and lubricate. Refer to Section 4.

# NOTES

**CAUTION**

IT IS NOT RECOMMENDED THAT GLOVES BE WORN WHILE OPERATING THIS EQUIPMENT! HOWEVER, IF GLOVES ARE WORN, WEAR ONLY LATEX GLOVES THAT CAN EASILY RIP IF CAUGHT ON A ROTATING MANDREL.

# NEW MACHINE
# INSPECTION & INSTALLATION PROCEDURE
# CHECKLIST
**FOR SUNNEN® MODULAR HONING SYSTEM**

## MECHANICAL

- ❑ 1. Move machine to staging area.
- ❑ 2. Remove shipping carton.
- ❑ 3. Remove all loose components.
- ❑ 4. Check components against list.
- ❑ 5. Inspect Machine and components.
- ❑ 6. Remove Bolts securing Machine to Skid.
- ❑ 7. Lift Machine and install Adjustable Feet.
- ❑ 8. Move machine to desired location.
- ❑ 9. Level machine.
- ❑ 10. Attach cable track.
- ❑ 11. Remove wooden block.
- ❑ 12. Attach coolant system.
- ❑ 13. Visual check hoses.
- ❑ 14. Verify all guards are in place.

## ELECTRICAL

- ❑ 1. Open doors to enclosure.
- ❑ 2. Route cables and connect to enclosure.
- ❑ 3. Attach power cord.
- ❑ 4. Route and connect cord to power source.
- ❑ 5. Visual check cable connectors.
- ❑ 6. Close doors to enclosure.
- ❑ 7. Connect coolant system to power source.

## GENERAL

- ❑ 1. Fill grease lubricating system.
- ❑ 2. Connect coolant system supply hose.
- ❑ 3. Connect coolant system return hose.
- ❑ 4. Fill coolant system reservoir.
- ❑ 5. Perform operational check.

Like any machinery, this equipment may be dangerous if used improperly. Be sure to read and follow instructions for operation of equipment.

# FRACTION / DECIMAL / MILLIMETER EQUIVALENTS CHART

| INCH FRACTION | INCH DECIMAL | MILLIMETER | INCH FRACTION | INCH DECIMAL | MILLIMETER | INCH FRACTION | INCH DECIMAL | MILLIMETER |
|---|---|---|---|---|---|---|---|---|
| . . . . | .003937 | 0,1000 | 9/32 | .281250 | 7,1438 | 21/32 | .656250 | 16,6688 |
| . . . . | .007874 | 0,2000 | 19/64 | .296875 | 7,5406 | . . . . | .669291 | 17,0000 |
| . . . . | .011811 | 0,3000 | 5/16 | .312500 | 7,9375 | 43/64 | .671875 | 17,0656 |
| 1/64 | .015625 | 0,3969 | . . . . | .314961 | 8,0000 | 11/16 | .687500 | 17,4625 |
| . . . . | .015748 | 0,4000 | 21/64 | .328125 | 8,3344 | 45/64 | .703125 | 17,8594 |
| . . . . | .019685 | 0,5000 | 11/32 | .343750 | 8,7313 | . . . . | .708661 | 18,0000 |
| . . . . | .023622 | 0,6000 | . . . . | .354331 | 9,0000 | 23/32 | .718750 | 18,2563 |
| . . . . | .027559 | 0,7000 | 23/64 | .359375 | 9,1281 | 47/64 | .734375 | 18,6531 |
| 1/32 | .031250 | 0,7938 | 3/8 | .375000 | 9,5250 | . . . . | .748031 | 19,0000 |
| . . . . | .031496 | 0,8000 | 25/64 | .390625 | 9,9219 | 3/4 | .750000 | 19,0500 |
| . . . . | .035433 | 0,9000 | . . . . | .393701 | 10,0000 | 49/64 | .765625 | 19,4469 |
| . . . . | .039370 | 1,0000 | 13/32 | .406250 | 10,3188 | 25/32 | .781250 | 19,8438 |
| 3/64 | .046875 | 1,1906 | 27/64 | .421875 | 10,7156 | . . . . | .787402 | 20,0000 |
| 1/16 | .062500 | 1,5875 | . . . . | .433071 | 11,0000 | 51/64 | .796875 | 20,2406 |
| 5/64 | .078125 | 1,9844 | 7/16 | .437500 | 11,1125 | 13/16 | .812500 | 20,6375 |
| . . . . | .078740 | 2,0000 | 29/64 | .453125 | 11,5094 | . . . . | .826772 | 21,0000 |
| 3/32 | .093750 | 2,3813 | 15/32 | .468750 | 11,9063 | 53/64 | .828125 | 21,0344 |
| 7/64 | .109375 | 2,7781 | . . . . | .472441 | 12,0000 | 27/32 | .843750 | 21,4313 |
| . . . . | .118110 | 3,0000 | 31/64 | .484375 | 12,3031 | 55/64 | .859375 | 21,8281 |
| 1/8 | .125000 | 3,1750 | 1/2 | .500000 | 12,7000 | . . . . | .866142 | 22,0000 |
| 9/64 | .140625 | 3,5719 | . . . . | .511811 | 13,0000 | 7/8 | .875000 | 22,2250 |
| 5/32 | .156250 | 3,9688 | 33/64 | .515625 | 13,0969 | 57/64 | .890625 | 22,6219 |
| . . . . | .157480 | 4,0000 | 17/32 | .531250 | 13,4938 | . . . . | .905512 | 23,0000 |
| 11/64 | .171875 | 4,3656 | 35/64 | .546875 | 13,8906 | 29/32 | .906250 | 23,0188 |
| 3/16 | .187500 | 4,7625 | . . . . | .551181 | 14,0000 | 59/64 | .921875 | 23,4156 |
| . . . . | .196850 | 5,0000 | 9/16 | .562500 | 14,2875 | 15/16 | .937500 | 23,8125 |
| 13/64 | .203125 | 5,1594 | 37/64 | .578125 | 14,6844 | . . . . | .944882 | 24,0000 |
| 7/32 | .218750 | 5,5563 | . . . . | .590551 | 15,0000 | 61/64 | .953125 | 24,2094 |
| 15/64 | .234375 | 5,9531 | 19/32 | .593750 | 15,0813 | 31/32 | .968750 | 24,6063 |
| . . . . | .236220 | 6,0000 | 39/64 | .609375 | 15,4781 | . . . . | .984252 | 25,0000 |
| 1/4 | .250000 | 6,3500 | 5/8 | .625000 | 15,8750 | 63/64 | .984375 | 25,0031 |
| 17/64 | .265625 | 6,7469 | . . . . | .629921 | 16,0000 | 1 | 1.000000 | 25,4000 |
| . . . . | .275591 | 7,0000 | 41/64 | .640625 | 16,2719 | 1-1/16 | 1.062500 | 26,9880 |

## FORMULAS:

| MULTIPLY | | BY | | TO GET |
|---|---|---|---|---|
| INCHES (in) | x | 25.4 | = | MILLIMETERS (mm) |
| FEET (ft) | x | 0.3048 | = | METERS (m) |

| MULTIPLY | | BY | | TO GET |
|---|---|---|---|---|
| MILLIMETERS (mm) | x | 0.03937 | = | INCHES (in) |
| METERS (m) | x | 3.281 | = | FEET (ft) |

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